Curriculum Vitae

December 26, 2024

PERSONAL DATA

- Name: Aurelio Juste Rozas
- Birthdate: June 29, 1970
- Birthplace: Terrassa, Barcelona (Spain)
- Citizenship: Spanish
- Address: Institut de Física d'Altes Energies (IFAE)
  Edifici Cn, Facultat de Ciencies
  Universitat Autònoma de Barcelona (UAB)
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EDUCATION

- 1998: Ph.D. thesis. Grade: Excellent Cum Laude. Title: "Measurement of the W mass in e^+e^- annihilation". Universitat Autònoma de Barcelona. Advisor: Dr. Lluís Garrido.
- 1995: Diploma thesis. Grade: Highest Honors. Title: "Analysis of the hadronic performance of the TILECAL prototype and comparison with Monte Carlo". Advisor: Dr. Martine Bosman.
- 1993–1998: Graduate studies at the Institut de Física d'Altes Energies (IFAE) of the Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.
- 1989–1993: Physics undergraduate at the Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.

RESEARCH POSITIONS

- November 2009–present: ICREA Research Professor at IFAE, Bellaterra, Barcelona, Spain.
- June 2006–November 2009: Scientist I at Fermilab, Batavia, Illinois, USA.
- June 2002–June 2006: Robert R. Wilson Fellow at Fermilab, Batavia, Illinois, USA.
- November 1998–June 2002 : Research Associate at Fermilab, Batavia, Illinois, USA.
- 1993–1998: Graduate Student Research Assistant at IFAE, Bellaterra, Barcelona, Spain.

AWARDS

- 2019 High Energy and Particle Physics Prize of the European Physical Society: *Awarded to the CDF and D0 Collaborations for the discovery of the top quark and the detailed measurement of its properties.* I played a leading role as convener of the D0 Run 2 Top Physics and Jet Energy Scale groups, as well as Physics Coordinator (see below).
- 2013 High Energy and Particle Physics Prize of the European Physical Society: *Awarded to the ATLAS and CMS Collaborations for the discovery of a Higgs boson, as predicted by the Brout-Englert-Higgs mechanism.*
- June 2006: promotion to Scientist I at Fermilab, Batavia, Illinois, USA.
- May 2002: Robert R. Wilson Fellowship at Fermilab, Batavia, Illinois, USA.
- July 1998: CERN Fellowship at CERN, Geneva, Switzerland; declined award.

SCIENTIFIC MANAGEMENT POSITIONS

- Since January 2016: leader of the ATLAS group at IFAE (22 members).
- March 2023–February 2025: chair of the ATLAS Publication Committee.
- October 2020–September 2022: convener of the ATLAS Exotics group.
- March 2015–December 2016: convener of the Metadata subgroup of the ATLAS Data Preparation group.
- September 2013–March 2015: convener of the HTop (Higgs & Top) subgroup of the ATLAS Higgs Physics group.
- September 2010–September 2013: convener of the D0 Jet Energy Resolution group.
- September 2009–September 2012: convener of the D0 Run 2 Higgs Physics group.
- September 2007–September 2009: Physics Coordinator of the D0 experiment at Fermilab, Batavia, Illinois, USA.
- October 2006–November 2009: Physics Support group leader of the Fermilab/D0 group.
- August 2006–September 2007: convener of the Physics Benchmarking working group of the Silicon Detector (SiD) detector for the International Linear Collider.
- September 2005–September 2007: convener of the D0 Run 2 Jet Energy Scale group.
- August 2003–September 2005: convener of the D0 Run 2 Top Physics group.
- June 2003–July 2006: convener of the Top/QCD working group of the American Linear Collider Physics/Detector Group.
- September 2002–March 2004: convener of the Top Properties subgroup of the D0 Run II Top Physics group.
- September 2002–August 2003: convener of the Top B-tagging subgroup of the D0 Run II Top Physics group.
- December 1999–December 2000: leader of the readout system of the silicon microstrip tracker of the upgraded D0 detector for Run II of the Tevatron collider at Fermilab, Batavia, Illinois, USA.

GRANT MANAGEMENT

- Sep 2022–Aug 2025: Principal Investigator of the IFAE-ATLAS group (22 members) under project PCI2022-135018-2, titled "ATLAS participation in the LHC IFAE". Funding received: 765.000 €. Funding agency: Ministry of Science and Innovation (MICINN) of the Spanish Government.
- Sep 2022–Aug 2025: Principal Investigator of the IFAE-ATLAS group (22 members) under project PID2021-125273NB-I00, titled "Participation of IFAE in the ATLAS experiment at the LHC: physics and detector operation". Funding received: 519.090 €. Funding agency: Ministry of Science and Innovation (MICINN) of the Spanish Government.
- Jan 2019–Sep 2022: Principal Investigator of the IFAE-ATLAS group (22 members) under project RTI2018-096930-B-I00, titled "Participation of IFAE in the ATLAS experiment at the LHC: physics and detector operation". Funding received: 1.188.220 €. Funding agency: Ministry of Science, Innovation and Universities (MICIU) of the Spanish Government.
- 2017–2019: Principal Investigator of the IFAE-ATLAS group (22 members) under project 2017 SGR 74. Funding received: 44.480 €. Funding agency: Agency for Administration of University and Research Grants (AGAUR) of the Generalitat de Catalunya.
- Jan 2016–Dec 2019: Co-Principal Investigator of the IFAE-ATLAS group (22 members) under project FPA2015-69260-C3-1-R, titled "Participation in the ATLAS experiment at the LHC: physics, detector operation and upgrade". Funding received: 1.796.850 €. Funding agency: Ministry of Economy and Competitiveness (MINECO) of the Spanish Government.
- 2014–2016: Principal Investigator of the IFAE-ATLAS group (24 members) under project 2014 SGR 696. Funding received: 30.000 €. Funding agency: Agency for Administration of University and Research Grants (AGAUR) of the Generalitat de Catalunya.

SUMMARY OF RESEARCH EXPERIENCE

Between 1993 and 1998, as a graduate student, I participated in experimental physics work at CERN, first within the TILECAL collaboration, designing and testing a prototype of the hadronic calorimeter for the ATLAS detector, and then within the ALEPH collaboration during LEP2, where I performed measurements of the W boson pair production cross section and the W boson mass in e^+e^- collisions, which constituted my PhD Thesis topic. Between 1996 and 2007, I participated in physics studies for a future e^+e^- International Linear Collider (ILC). I have led two linear collider physics working groups and I have served as convener of working groups at ILC workshops.

In November 1998 I moved to Fermilab where I was Research Associate (1998-2002), Wilson Fellow (tenure-track, 2002-2006), and staff scientist (2006-2009). I worked at the DØ experiment, studying proton-antiproton collisions delivered by the Tevatron. At DØ I participated in many important physics analyses and held a number of leadership positions, in detector, algorithms, physics and upper management fronts. I led the commissioning of the Silicon Microstrip Tracker readout system and I was involved in the operation of the detector. I was convener of the Jet Energy Scale group, where I developed the most precise jet energy calibration achieved at the Tevatron. One of my main research areas was the physics of the top quark, where I performed several measurements probing top quark production and decay mechanisms. I was convener of two subgroups of the Top Physics group, and eventually the whole Top Physics group (2003-2005). Between 2006 and 2013 I participated in the search for the Higgs boson in several production and decay modes and was convener of the Higgs Physics group during 2009-2012, the period when the Tevatron produced its most exciting results. During 2006-2009 I was the supervisor of Fermilab postdocs and fellows at DØ, and during 2007-2009 I was DØ Physics Coordinator.

In November 2009 I became a research professor at ICREA (Catalan Institution for Research and Advanced Studies) and I joined IFAE, where I am studying proton-proton collisions with the ATLAS experiment at CERN's Large Hadron Collider (LHC). At the LHC I am carrying out studies on the heaviest known elementary particle, the top quark, as well as on the Higgs boson, seeking connections in the dynamics that govern both particles. I am also searching for new phenomena, such as supersymmetric partners of Standard Model particles, exotic heavy quarks appearing in composite Higgs models or models with extra spatial dimensions, or additional Higgs bosons revealing an extended Higgs sector. Since 2016, I lead a team of over 20 scientists from IFAE that analyzes the data from the ATLAS experiment. During 2020-2022 I was convener of the ATLAS Exotics working group, leading a team of about 600 scientists pursuing a broad program of new phenomena searches at the energy frontier. Between March 2023 and February 2025 I was the Chair of the ATLAS Publication Committee.

I am author of hundreds of publications, with over 100 publications with major and direct contributions. Over the last 10 years I have participated in the organization of 20 international conferences or workshops, I have given over 40 invited talks at conferences or workshops, about 15 invited seminars at universities or research centers, and over 50 outreach talks. I have also participated in over 10 scientific or evaluation committees. I regularly serve as referee of the Eur. Phys. J C, JHEP, and several APS journals.

Finally, I have made major contributions to the advancement of early careers of researchers

under my direct supervision. Over the last 10 years I have supervised 11 PhD theses and 16 Master theses, and I have participated in 10 PhD thesis committees. I am currently supervising 5 PhD theses and 4 Master theses. After graduation, most of my PhD students have found excellent positions as postdocs in high-energy physics (e.g., SLAC Fellow, CERN Fellow, University of Geneva, University of Washington, Michigan State University, University of Montreal) and other research fields (e.g., Institute for Quantitative and Theoretical Biology, Heinrich Heine University), as well as competitive positions in Industry. Similarly, most postdocs under my supervision eventually moved onto excellent second postdoctoral positions (e.g., CERN Fellow, CERN LD, DESY Fellow, Michigan State University) or faculty positions (e.g., IFIC-Valencia, University of California Irvine).

REVIEW PANELS

Participated in 16 different review panels. Over the last 5 years:

(1) *Evaluation of Research Proposals submitted to the CFMA03* (since 2021): I served as external expert for the review of projects submitted to the Comisión de Ciencias Física, Matemáticas y Astronómicas 03 del Fondo para la Investigación Cientíífica y Tecnológica (FONCyT) of the República Argentina.

(2) *Evaluation of Research Proposals submitted to the RGC–Hong Kong* (since 2017): I served as external expert for the review of projects submitted to the Research Grants Council of Hong Kong.

(3) *Spanish National Evaluation and Foresight Agency (ANEP) (since 2014)*: I served as external expert for the review of projects submitted to the ANEP.

(4) *Dutch Research Council (NWO) (since 2006)*: I served as external expert for the review of projects submitted to the Dutch Research Council.

ORGANIZATION OF CONFERENCES AND WORKSHOPS

Participated in the organization of 38 conferences or workshops. Over the last 5 years:

(1) Member of the Program Committee of the *Future Circular Collider Day - Spain*, CIEMAT, Madrid, Spain, October 7, 2024.

(2) Member of the Local Organizing Committee of the *ATLAS Top Physics Workshop*, Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, April 28-May 3, 2024.

(3) Co-chair of the *ATLAS HDBS and Exotics 2023 Workshop*, UAB, Bellaterra, Spain, October 9-13, 2023.

(4) Co-chair of the workshop *The LHC precision program*, Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, October 1-7, 2023.

(5) Co-chair of the *ATLAS Exotics Workshop 2022*, Amsterdam, The Netherlands, September 26-30, 2022.

(6) Member of the Program Committee of the *Flavour Anomaly Workshop 2021*, CERN, Switzerland, October 20, 2021.

(7) Co-chair of the *ATLAS Exotics Workshop 2021* (online), September 27-29, 2021.

(8) Co-chair of the *ATLAS Joint Search Workshop 2021* (online), September 23-24, 2021.

OTHER RECENT ADVISORY ACTIVITIES

- Member of the IFAE Advisory Group (to the director), IFAE, Spain (since January 2019).
- Member of the Speakers Committee of the ATLAS experiment (October 2017-September 2020; Deputy Chair: April 2019-September 2019; Chair: October 2019-March 2020).
- Representative of IFAE within the Red Consolider "Centro Nacional de Física de Partículas, Astropartículas y Nuclear" (CPAN) (since July 2015).
- Representative of IFAE within the Red de Excelencia "Red de Física en el LHC y actualización de sus experimentos" (Red LHC) (2016–2024).

- Member of the Editorial Board of the Journal of Particle Physics (2016–2021).
- Member of the Editorial Board of the journal Advances in High Energy Physics (2015–2022).
- Member of multiple editorial boards within the D0 and ATLAS experiments.
- Referee of the European Physics Journal C, Journal of High Energy Physics, and several APS journals.

Ph.D. THESES

Directed or co-directed a total of 12 Ph.D. theses. Several of my PhD students have received awards for their Ph.D. theses. Currently supervising 5 Ph.D. theses at IFAE. Over the last 5 years:

(1) Director of Ph.D. Thesis in Physics by S. Epari, "What to expect when you are expecting new physics: searches for new phenomena with the ATLAS detector", Universitat Autònoma de Barcelona, Bellaterra, Spain, October 2024. Grade: Excellent Cum Laude.

(2) Director of Ph.D. Thesis in Physics by S. Kazakos, "Measurement of the inclusive and differential cross sections of the associated production of a top-quark pair and a W boson, and search for leptoquarks in multilepton final states with the ATLAS detector", Universitat Autònoma de Barcelona, Bellaterra, Spain, January 2023. Grade: Excellent Cum Laude.

(3) Co-director of Ph.D. Thesis in Physics by C. Moreno Martínez, "Search for supersymmetric particles in final states with multiple heavy-flavour jets with the ATLAS detector", Universitat Autònoma de Barcelona, Bellaterra, Spain, April 2022. Grade: Excellent Cum Laude.

(4) Director of Ph.D. Thesis in Physics by T. Van Daalen, "Searches for heavy top partners with the ATLAS detector and irradiation studies of the Tile hadronic calorimeter", Universitat Autònoma de Barcelona, Bellaterra, Spain, March 2021. Grade: Excellent Cum Laude.

Participated in 23 Ph.D. thesis dissertation committees and 3 "Habilitation à Diriger des Recherches". Over the last 5 years:

(1) Ph.D. final oral examination of Neelam Kumari in Physics, Aix Marseille Université, Marseille, France, November 2022.

(2) Ph.D. final oral examination of José Luís Muñoz in Physics, Universitat Autònoma de Barcelona, Spain, October 2021.

(3) Ph.D. final oral examination of Fabian Sohns in Physics, Georg-August-Universität Göttingen, Göttingen, July 2020.

MASTER THESES

Directed a total of 16 Master theses. Currently supervising 4 Master theses. Over the last 5 years:

(1) Director of Master Thesis in High Energy Physics by Pau Fusté Martín, "Exploring the LHC's Hidden Secrets: Hunting for heavy scalars with flavor-violating couplings at the LHC", Universitat Autònoma de Barcelona, Bellaterra, Spain, September 2024.

(2) Director of Master Thesis in High Energy Physics by Alejandro Cortés Roca, "Model-agnostic search for new phenomena in multilepton final states at the LHC", Universitat Autònoma de Barcelona, Bellaterra, Spain, September 2024.

(3) Director of Master Thesis in High Energy Physics by Carlos Centeno Lorca, "Estimation of the neutrino momentum coming from tau decays using machine learning", Universitat Autònoma de Barcelona, Bellaterra, Spain, July 2024.

(4) Director of Master Thesis in High Energy Physics by Nishant Gaurav, "Large scala reinterpretation of ATLAS supersymmetry searches within the framework of the pMSSM model", Indian Institute of Science Education and Research-Kolkata, India, May 2024.

(5) Director of Master Thesis in High Energy Physics by Atanay Rodríguez Odella, "Search for new phenomena in 5-lepton final states with the ATLAS detector", Universitat Autònoma de Barcelona, Bellaterra, Spain, September 2023.

(6) Director of Master Thesis in High Energy Physics by Iker Vea Lladser, "Search for vector-like leptons using signatures with light leptons and taus in the ATLAS experiment", Universitat Autònoma de Barcelona, Bellaterra, Spain, September 2023.

(7) Director of Master Thesis in High Energy Physics by Marc Cunill, "Search for leptoquarks in tau final states with the full Run 2 dataset", Universitat Autònoma de Barcelona, Bellaterra, Spain, September 2023.

(8) Director of Master Thesis in High Energy Physics by Snigho Chakraborty, "Search for vector-like leptons in the ATLAS detector", Indian Institute of Science Education and Research-Kolkata, India, May 2023.

(9) Director of Master Thesis in High Energy Physics by Sayantan Dutta, "Search for vector-like leptons in the ATLAS detector", Indian Institute of Science Education and Research-Kolkata, India, May 2023.

(10) Director of Master Thesis in High Energy Physics by Chinmay Seth, "Search for the pair production of top vector-like quarks in final states with multiple b-jets and large missing transverse energy", Sardar Vallabhbhai National Institute of Technology, India, June 2022.

(11) Director of Master Thesis in High Energy Physics by Helena Recasens García, "Application of machine-learning techniques for background suppression in searches for higgsino pair production with the ATLAS detector", Universitat Autònoma de Barcelona, Bellaterra, Spain, September 2021.

(12) Director of Master Thesis in High Energy Physics by Fernando García Avelló, "Search for the pair production of vector-like quarks in final states with multiple b-jets'", Universitat Autònoma de Barcelona, Bellaterra, Spain, September 2021.

(13) Director of Master Thesis in High Energy Physics by Alberto José Saavedra García, "Study of effective operators in $t\bar{t}t\bar{t}$ production at the Large Hadron Collider", Universitat Autònoma de Barcelona, Bellaterra, Spain, October 2020.

TEACHING EXPERIENCE

- Lectures within the Postgraduate Program in High Energy Physics, Astrophysics and Cosmology, UAB/IFAE/ICE (since 2015). Over the last 5 years:
  (1) "Phenomenology of the Standard Model" (18 hours), December 2024.
  (2) "Phenomenology of the Standard Model" (18 hours), December 2023.
  (3) "Phenomenology of the Standard Model" (18 hours), December 2022.
  (4) "Phenomenology of the Standard Model" (18 hours), December 2021.
  (5) "Phenomenology of the Standard Model" (18 hours), December 2020.
- Lectures at International Schools:
  (1) "LHC Physics" (3 hours), *Taller de Altas Energías (TAE 2023)*, Benasque, Spain, September 3-16, 2023.
  (2) "Higgs Physics" (3 hours), *Hadron Collider School (HASCO 2017)*, Georg-August-Universtät Göttingen, Göttingen, Germany, July 16-21, 2017.
  (3) "Top Quark Physics" (2 hours), *XLI International Meeting on Fundamental Physics*, Santander, Spain, May 20-24, 2013.
  (4) "Searches for new Phenomena at the Tevatron" (2 hours), *International School Cargese 2012: Across the TeV frontier with the LHC*, Institut d'Etudes Scientifiques de Cargese, Cargese, Corsica, August 20-September 1, 2012.
  (5) "Top Quark Physics at the Tevatron" (1 hour), *Ringberg Phenomenology Workshop on Perspectives in Heavy Flavor Physics*, Rottach-Egern, Germany, October 1-6, 2006.
- From October 1997 until September 1998 I worked as teaching assistant in the Department of Physics at the Universitat Autònoma de Barcelona. I taught physics students Mathematical Methods (Differential Equations and Hilbert Spaces), Classical Mechanics and Nuclear and Particle Physics.

TALKS AT CONFERENCES AND WORKSHOPS

A total of 103 invited talks at conferences or workshops. Over the last 5 years:

(1) "Theory input for searches with top quarks", *ATLAS HDBS and Exotics 2023 Workshop*, Barcelona, Spain, October 9-13, 2023.

(2) "Anomalies in BSM searches", *7th Red LHC Workshop*, Instituto de Física Teórica (IFT), Universidad Autónoma de Madrid, Madrid, Spain, May 10-12, 2023.

(3) "ATLAS and CMS results on direct signatures for flavour anomalies", *Beyond the Flavour Anomalies IV Workshop*, Barcelona, Spain, April 19-21, 2023.

(4) "Leptoquarks and flavour anomaly searches", *57th Rencontres de Moriond 2023: Electroweak Interactions & Unified Theories*, La Thuile, Italy, March 18-25, 2023.

(5) "LHC experiments' performance, first results, and opportunities for Run 3", *XIV CPAN Days*, Bilbao, Spain, November 23-25, 2022.

(6) "Overview of collider searches and opportunities", *Topical Workshop: Electroweak Precision Physics from Beta Decays to the Z Pole*, Mainz Institute for Theoretical Physics (MITP), Johannes Gutenberg University Mainz, Mainz, Germany, October 24-28, 2022.

(7) "Anomalies in BSM searches", *6th Red LHC Workshop*, Instituto de Física Teórica (IFT), Universidad Autónoma de Madrid, Madrid, Spain, May 9-11, 2022.

(8) "Probing the composite nature of the Higgs boson at the LHC", *Topical Workshop: Is there still room for Naturalness?*, Nordic Institute for Theoretical Physics (NORDITA), Stockholm, Sweden, April 19-29, 2022.

(9) "ATLAS Top+X studies and measurements outside the Top group", *ATLAS Top Working Group Workshop* (online), June 15-18, 2021.

(10) "High-p_{T} implications of (muon) anomalies – Experimental perspective", CERN *Collider Cross Talk* (online), June 2, 2021.

(11) "Topping-up multilepton plus b-jets anomalies at the LHC with a Z' boson", *5th Red LHC Workshop* (online), May 10-12, 2021.

TALKS AT COLLOQUIA, SEMINARS OR COMMITTEES

A total of 42 invited talks at colloquia, seminars or committees. Over the last 5 years:

(1) "Exploring the Quantum Universe", *BIST-UPF Master Seminar*, The Barcelona Institute of Science and Technology, Barcelona, Spain, September 27, 2023.

(2) "Probing the composite nature of the Higgs boson at the LHC", *Frontier Research in Astrophysics and Particle Physics Seminar, Máster interuniversitario (UC-UIMP) en física de partículas y del cosmos*, Instituto de Física de Cantabria, Santander, Spain, April 24, 2023.

(3) "Exploring the Quantum Universe", *BIST-UPF Master Seminar*, The Barcelona Institute of Science and Technology, Barcelona, Spain, October 3, 2022.

(4) "Exploring the Quantum Universe", *BIST-UPF Master Seminar*, The Barcelona Institute of Science and Technology, Barcelona, Spain, October 19, 2021.

(5) "Exploring the Quantum Universe", *BIST-UPF Master Seminar*, The Barcelona Institute of Science and Technology, Barcelona, Spain, March 22, 2021.

(6) "New Physics Searches at ATLAS and CMS", *Frontier Research in Astrophysics and Particle Physics Seminar, Máster interuniversitario (UC-UIMP) en física de partículas y del cosmos*, Instituto de Física de Cantabria, Santander, Spain, May 8, 2020.

DISSEMINATION ACTIVITIES

A total of 56 outreach talks. Over the last 5 years:

- CERN Courier Feature (May 2, 2022): "The search for new physics: take three" by Aurelio Juste and Patrick Rieck.
- Outreach talks addressed to the general public:
  - "A decade of discoveries at the LHC", Centro de Ciencias de Benasque Pedro Pascual, October 4, 2023.
  - "A decade of discoveries at the LHC", Fundación Ramón Areces, Madrid, Spain, July 8, 2021. Video.

  - "A quantum future: the next technological revolution? A Talk With Antonio Acín, Aurelio Juste and Clivia Sotomayor", Centre de Cultura Contemporània de Barcelona (CCCB), Barcelona, April 13, 2019. Video.
  - "An Extraordinary Universe",
    Associació Astronòmica Sant Cugat-Valldoreix, Sant Cugat del Vallès, Spain, Octubre 22, 2020.
    Pint of Science, Cal Temerari, Sant Cugat del Vallès, Spain, May 21, 2019.
- Outreach talks addressed to university students:
  - "A decade of discoveries at the LHC", UAB Pizza Seminar, November 15, 2023.
- Outreach talks addressed to high-school students within the program "Bojos per la Física" (Mad About Physics):
  - "The Quantum Universe at Your Fingertips",
    IFAE, Bellaterra, Spain, January 28, 2023.
    IFAE, Bellaterra, Spain, February 5, 2022.
    IFAE, Bellaterra, Spain, February 6, 2021.
    IFAE, Bellaterra, Spain, January 25, 2020.
    IFAE, Bellaterra, Spain, January 19, 2019.
- Other outreach addressed talks to high-school students:
  - "An Extraordinary Universe", IES Pere Calders, Cerdanyola, Spain, September 16, 2019.

PUBLICATIONS

Below I provide a list selected publications in high-impact, peer-reviewed journals with leading and major own contributions. In publications by the ATLAS and D0 collaborations, authors are listed alphabetically; the concept of primary authorship is not applicable to journal publications in experimental particle physics. The full list of publications is available upon request.

- Selected personal publications (out of 42) in the last 5 years:
  (1) E. Arganda, L. Da Rold, A. Juste, A. D. Medina and R. M. Sandá Seoane, "Probing new physics with charge asymmetries in 2 same-sign leptons plus jets final states at the LHC," JHEP **01**, 156 (2024) [arXiv:2308.08008 [hep-ph]].
  (2) X. H. Jiang, A. Juste, Y. Y. Li and T. Liu, "Detecting new physics as novelty – Complementarity matters," JHEP **10**, 085 (2022) [arXiv:2202.02165 [hep-ph]].
  (3) E. Alvarez, A. Juste, M. Szewc and T. Vazquez Schroeder, "Topping-up multilepton plus b-jets anomalies at the LHC with a Z' boson," JHEP **05**, 125 (2021) [arXiv:2011.06514 [hep-ph]].
- Selected publications with the ATLAS Collaboration (out of 1312) in the last 5 years:
  (1) ATLAS Collaboration, "Search for vector-like leptons coupling to first- and second-generation Standard Model leptons in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2411.07143 [hep-ex]].
  (2) ATLAS Collaboration, "Search for same-charge top-quark pair production in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2409.14982 [hep-ex]].

(3) ATLAS Collaboration, "Search for $t\bar{t}H/A \to t\bar{t}t\bar{t}$ production in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2408.17164 [hep-ex]].

(4) ATLAS Collaboration, "Combination of searches for singly produced vector-like top quarks in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2408.08789 [hep-ex]].

(5) ATLAS Collaboration, "Combination of searches for pair-produced leptoquarks at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **854**, 138736 (2024) [arXiv:2401.11928 [hep-ex]].

(6) ATLAS Collaboration, "Search for pair production of higgsinos in events with two Higgs bosons and missing transverse momentum in $\sqrt{s} = 13$ TeV pp collisions at the ATLAS experiment," Phys. Rev. D **109**, 112011 (2024) [arXiv:2401.14922 [hep-ex]].

(7) ATLAS Collaboration, "Interpretations of the ATLAS measurements of Higgs boson production and decay rates and differential cross-sections in pp collisions at $\sqrt{s} = 13$ TeV," JHEP **11**, 097 (2024) [arXiv:2402.05742 [hep-ex]].

(8) ATLAS Collaboration, "Combination of Searches for Higgs Boson Pair Production in pp Collisions at $\sqrt{s} = 13$ TeV with the ATLAS Detector," Phys. Rev. Lett. **133**, 101801 (2024) [arXiv:2406.09971 [hep-ex]].

(9) ATLAS Collaboration, "Search for non-resonant Higgs boson pair production in final states with leptons, taus, and photons in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **08**, 164 (2024) [arXiv:2405.20040 [hep-ex]].

(10) ATLAS Collaboration, "Measurement of the total and differential cross-sections of $t\bar{t}W$ production in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **05**, 131 (2024) [arXiv:2401.05299 [hep-ex]].

(11) ATLAS Collaboration, "Search for leptoquark pair production decaying into $te^-\bar{t}e^+$ or $t\mu^-\bar{t}\mu^+$ in multi-lepton final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Eur. Phys. J. C **84**, 818 (2024) [arXiv:2306.17642 [hep-ex]].

(12) ATLAS Collaboration, "Search for a new pseudoscalar decaying into a pair of muons in events with a top-quark pair at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **108**, 092007 (2023) [arXiv:2304.14247 [hep-ex]].

(13) ATLAS Collaboration, "Search for heavy Higgs bosons with flavour-violating couplings in multi-lepton plus b-jets final states in pp collisions at 13 TeV with the ATLAS detector," JHEP **12**, 081 (2023) [arXiv:2307.14759 [hep-ex]].

(14) ATLAS Collaboration, "Search for a light charged Higgs boson in $t \to H^{\pm}b$ decays, with $H^{\pm} \to cb$, in the lepton+jets final state in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **09**, 004 (2023) [arXiv:2302.11739 [hep-ex]].

(15) ATLAS Collaboration, "Search for single production of vector-like T quarks decaying into Ht or Zt in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **08**, 153 (2023) [arXiv:2305.03401 [hep-ex]].

(16) ATLAS Collaboration, "Search for a new scalar resonance in flavour-changing neutral-current top-quark decays $t \to qX$ ($q = u, c$), with $X \to b\bar{b}$, in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **07**, 199 (2023) [arXiv:2301.03902 [hep-ex]].

(17) ATLAS Collaboration, "Search for supersymmetry in final states with missing transverse momentum and three or more b-jets in 139 fb^{-1} of proton–proton collisions

at $\sqrt{s}$ = 13 TeV with the ATLAS detector," Eur. Phys. J. C **83**, 561 (2023) [arXiv:2211.08028 [hep-ex]].

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